

they live. They were recovered in numbers (hundreds) by screening the mud from the bottom in about two feet of water at low tide, or by scraping the hand screen through the isolated clumps of Eelgrass. They have been seen also from the lower Potomac River at Colonial Beach, Virginia, and Cobb Island, Maryland, and from the Little Choptank River, near Cambridge, Maryland (Jackson). In both the Patuxent and the Little Choptank Rivers, they were taken in company with *Paludestrina (Ecrobia) truncata* Vanatta.

*SAYELLA WATLINGSI*, new species.

Shell: small, elongate-ovate, pellucid; whorls six, regularly arched from suture to suture, slowly increasing, obsolete microscopically spirally striate; apex obtuse, nucleus (1 whorl) diagonally upturned. The aperture is a little oblique, obtusely angled above, effuse below, meeting the columellar lamella in a broadly rounded curve. The parietal callus barely reaches the lamella, leaving a minute but distinct spiral, tubular umbilicus.

Animal: not observed.

The type (U.S.N.M. No. 127488) was received from the U. S. Fish Commission, collected from the lagoon at Watling's Island (San Salvador) in the Bahamas, and measures: Height, 3.35 mm.; diameter, 1.2 mm.; aperture height, 1.1 mm.; aperture diameter, 0.7 mm. This species does not exhibit the extreme flattening of whorls seen in *crosscana* Dall; hence is of greater diameter, although nearly equal in height. Its shell appears thinner and more pellucid.

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## AN UNUSUAL CAVE DEPOSIT

BY J. P. E. MORRISON<sup>1</sup>

Skyline Caverns, one mile south of Front Royal, Warren County, Virginia, were visited through the courtesy of Skyline Caverns, Inc., extended by Mr. Theodor Mussaens, on the third of July, 1938. The writer went to investigate the possibilities of a cave race of *Polygyra tridentata* (Say). One peculiar specimen of this land snail was collected from the cave, near its mouth,

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by a student of Dr. John W. Bailey of the University of Richmond, on a previous exploration trip. No additional specimens were found, so this peculiarity must remain in the category of chance or individual variation, occurring when the snail lives in the deeper rock crevices, yet near the ground surface.

In the course of visiting accessible parts of the caverns, the lowermost level, now being eroded by a small stream, was carefully examined. Nothing was seen living in the sandy and gravelly bed of the narrow stream, here cutting a winding passage deeper and deeper into the limestone. It was at the furthest upstream point reached by the writer that the unusual was found. The stream is about 12 to 18 inches wide, and at this date was ankle deep over sand bottom, where it emerges from a tunnel passing underneath some of the other cave chambers. This tortuous tunnel opens beneath a hood whose ceiling is about seven feet above the stream bed. The report of plant seeds seen by the previous exploration party drifted up onto the sides of the cave was fully confirmed. In addition, there were small white objects peppered over the walls and ceiling of this "hood," but most numerous in the crevices. These white objects proved to be snail shells, adhering to the reddish clay coating over the surface of the limestone rock. Apparently the water of a freshet of an earlier date that season had poured out of this tunnel faster than the channels leading out of the cave system could carry off the water. The water rising rapidly in this lowermost chamber had floated the drift shells upward, where, in the eddies, they adhered to the ceiling of the "hood," about five to seven feet above the ordinary water level of this normally tiny underground rill. That this sort of cave deposit is transitory (in this portion of the Shenandoah Valley) is indicated by the extreme fragility of all these drift shell specimens. Only a relatively short exposure to the action of these acid ground waters would dissolve them completely. *It was indeed most unusual to find Land Snail shells in stream drift deposited on the roof of a cave-chamber.*

Twenty-six species of Land Shells were recovered from the cave:

- Polygyra tridentata juxtidentis* (Pils.). L
- stenotrema* (Fér.).
- hirsuta* (Say).

- Haplotrema concavum* (Say). L  
*Gastrocopta armifera* (Say).  
     *contracta* (Say).  
     *pentodon* (Say). L  
*Vertigo gouldii* (Binney). L  
*Columella edentula* (Drap.).  
*Strobilops labyrinthica* (Say). L  
*Guppya sterkii* (Dall). L  
*Euconulus chersinus* (Say). L  
     *chersinus dentatus* Sterki.  
*Striatura meridionalis* (P. & F.). L  
*Hawaiiia minuscula* (Binney).  
*Retinella indentata* (Say). L  
     *rhoadsi* (Pils.).  
     *virginica* Morrison.  
*Ventridens suppressus* (Say).  
*Zonitoides arboreus* (Say).  
*Anguispira alternata* (Say).  
*Helicodiscus parallelus* (Say).  
     *singleyanus inermis* H. B. Baker.  
*Punctum vitreum* H. B. Baker. L  
*Carychium exile* H. C. Lea. L  
     *nannodes* Clapp.

Those species marked L were found *living*, on the same date, in the leafmold on the upper slopes of Dickey's Hill, just above one of the sink-hole entrances, through which this drift was washed into the Skyline Caverns. In addition to the Land Snail shells, one very small specimen of ?*Fontigens nickliniana* (Lea)? was recovered from this drift. Does this little Freshwater Snail live in caves as well as springs?

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## LAND SNAILS NEW TO THE FAUNA OF PENNSYLVANIA

BY GORDON K. MACMILLAN  
Carnegie Museum

Collections made in some sections of Pennsylvania during the past two years have brought to light three land snails that have never before been recorded in this State. The credit for their discovery belongs to Charles Wurtz, a recent graduate from the University of Pittsburgh. These snails are :